PATENT SPECIFICATION

Application Date: Oct. 15, 1927. No. 27,861/27. **297,230**

Complete Left: June 28, 1928.

Complete Accepted: Sept. 20, 1928.

PROVISIONAL SPECIFICATION.

Egg Washing Machine.

I, REGINALD BROOKS-KING, British, of Sunny Bank, West Hill, Ottery St. Mary, Devon, do hereby declare the nature of this invention to be as follows:—

A machine for washing eggs is constructed as follows.

A brush of suitable shape, is fitted in a tank and revolved by suitable means.

The tank is fitted with a cover, to prevent splash from washing solution which is contained in tank and into which the revolving brush dips.

Fitted in one end of tank, is a crate which can be swung backwards and forwards, and also pivoted.

Fitted in this crate are two parallel spindles which can revolve, and on which are fitted two pairs of cones of rubber, or other suitable material, on which the egg rests.

At the entrance ends of the upper of these spindles, are fitted pulleys, which are connected by suitable belts, to similar pulleys on spindle of revolving brush, which causes it to revolve when brush is in motion; and by which means the egg is caused to revolve.

The lower spindle is made so that it can be tripped, and allow the egg when washed to pass along a suitable channel under brush and is thus conveyed to end of washing tank and finally, falling into another tank, filled with clean water. The channel along which the egg is thus passed is suitably sprung so as to accommodate eggs of all sizes.

Dated the 12th day of October, 1927.

REG. BROOKS-KING.

COMPLETE SPECIFICATION.

Egg Washing Machine.

I, REGINALD BROOKS-KING, of "Sunny Bank", West Hill, Ottery St. Mary, Devonshire; a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has for its object to provide a simple and efficient machine of sturdy construction adapted to wash eggs, for example fowls' eggs or ducks' eggs of all sizes. The machine is so designed as to be free from any parts requiring skilled care or attention so that it is eminently suitable for use in poultry farms and the like.

A machine according to the invention comprises a rotary brush of suitable shape to function upon the surface of an egg, and means for holding an egg and for pressing the same towards said brush in order to present every part of the surface of the egg to the action of said brush. Means are also provided for releasing the egg at the end of a scrubbing operation and for discharging the eggs from the machine after being scrubbed by the brush. Preferably the discharging means are associated with a final washing or rinsing tank into which the eggs are delivered from the egg washing machine. The rotary brush is arranged within or in such relation to a tank adapted to contain washing liquid that as the brush rotates it dips into the said washing liquid.

Conveniently the egg-holding means comprise pairs of conical rollers made of rubber or other appropriate material on which the egg rests and the said rollers are carried by a hinged or pivoted structure, one pair at least of said rollers being positively driven during the rotation of the brush. The said egg-supporting conical rollers are mounted on spindles carried by a structure conveniently comprising stirrup members arranged one within the other as hereinafter described, the said structure being mounted to rock on a supporting member that is itself mounted to rotate on a

[Price 1/-]

vertical pivot so that the structure is capable of a universal angular movement that greatly facilitates the application of an egg to the action of the brush during an egg washing operation.

Fig. 1 of the accompanying illustrative drawings shows in side elevation an example of an egg washing machine constructed according to the invention.

Fig. 2 is a plan with the hinged protecting guard removed in order to show the mechanism below the same more clearly.

Fig. 3 is a central longitudinal vertical section through the machine.

Fig. 4 is a similar view to the left hand part of Fig. 3, but showing the parts in the position into which they are moved by hand in order to release an egg after it has been subjected to a brushing treatment.

Fig. 5 is a part transverse section on the line A B of Fig. 3, and,

Fig. 6 is a detail section corresponding to the line C D of Fig. 2.

The machine illustrated by way of example comprises a brush the bristles 1 of which are fitted in a bobbin-like wooden boss 2, the arrangement of the tufts of bristles and the shape of the boss being such that the configuration of the brush presents an annular peripheral groove that is of semi-egg shape in cross section, see Fig. 2. The brush is fixed on a spindle 3 that is mounted to rotate in bearings 4 carried by upward extensions 5 of a bracket 6 that is fixed in a tank 7 containing water or other washing solution into which the revolving brush dips.

In the machine under notice the brush is rotated by hand and for this purpose there is fixed to the spindle 3 a toothed pinion 8 that gears into a toothed wheel 9 fixed on one end of a sleeve 10 to the other end of which is secured an operating hand crank 11. The sleeve 10 is mounted to rotate on a short spindle 12 projecting laterally from one of the uprights 5.

13 indicates a splash guard normally extending over the brush and that is pivoted at 14 to the sides of the tank 7, its free end being formed with hooks 15 that rest on the top edges of the tank.

The bracket 6 fixed in the tank 7 carries near one end of the tank an upwardly extending pin 16 on which there is mounted a bracket 17 having upturned ends 18 that carry a spindle 19 on which there is mounted to rock the arms 20 of a stirrup-like member that extends upwardly above the top of the tank. The arms 20 of the said member are connected at their upper ends by a cross bar 21 from the central part of which a finger piece 22 projects outwardly over the adjacent end of the tank.

Mounted to rotate in the arms 20 is a transverse spindle 23 on which there are mounted to rock freely the arms 24 of another stirrup-like member located within the first-mentioned or outer stirrup member. The cross member 25 connecting the upper ends of the arms 24 of the inner stirrup member is provided at its central part with bent arms 26 and 27 that extend one below and one above the cross bar 21. 28 indicates a spacing rod connecting together the arms 20 of the outer stirrup member.

The free ends of the arms 24 of the inner stirrup member carry a rod or spindle 29 on which are mounted two flanged cones 30 of rubber. Similar rubber cones 31 are mounted on the rotary spindle 23 and fixed on the ends of said spindle, which projects over the sides of the tank, are pulleys 32 to receive rubber driving bands 33 that also pass over pulleys 34 fixed on the ends of the spindle 3 that carries the rotary brush.

The rubber cones 30 and 31 are so positioned and shaped as to receive an egg and hold the same in position for being subjected to the action of the rotary brush. The dotted circle E in Fig. 3 indicates the position of an egg whilst being brushed. Normally the inner stirrup member is kept by a helical spring 35 in the operative position indicated in Fig. 3, the said spring being connected at one end to an adjustable screw 36 carried by a small angle bracket 37 fixed to the adjacent end wall of the tank, and attached at its other end to the lower outwardly projecting arm 26 of the inner stirrup member. The upper projecting arm 27 limits the rotary movement of the inner stirrup member by bearing on the arm 22 of the outer stirrup member, see Fig. 3.

As before stated, the brush dips into the water or washing solution in the tank 7 and when the egg holder constituted by the rocking structure comprising the outer and inner stirrup members is in the position shown in Figs. 1, 2 and 3, an egg resting on the rubber cones 30 and 31 is subjected to a thorough scrubbing by the rotation of the brush.

Simultaneously with the rotation of the brush the rubber cones 31 are rotated by rotation of the spindle 23 by means of the driving bands 33, and the rubber cones 30 are also free to rotate by friction of the egg resting thereon so that the egg rotates whilst being scrubbed. Moreover, the operator, who during the washing treatment rotates the brush with one hand and manipulates the rocking

structure with the other, can during the washing treatment move the rocking structure angularly about the vertical pivot pin 16 and can generally so control the said structure as to ensure the egg being treated all over by the brush. The rubber bands 33, in addition to acting as driving bands, also constitute springs constantly tending to pull the rocking structure towards the brush, that is to say to press an egg resting on the rubber cones of said rocking structure against the brush.

In order to release the egg at the end of the scrubbing operation the inner stirrup of the rocking structure is moved, against the action of the spring 35, into a position in which the lower egg-supporting cones 30 are further from the brush, see Fig. 4. This movement is readily effected by pressing the arm 26 upwardly towards the arm 22. At the same time, if necessary, the rocking structure as a whole is moved outwardly about the axis 19. The egg therefore is drawn downwardly by the continued rotation of the rotary brush on to a very flexible rubber strip 38 and caused to travel along the same until it passes on to metal guide strips 39 which extend over the far end of the tank and from the ends of which the egg falls into a final washing or rinsing tank containing water or other liquid. It will be appreciated that the force due to the rotation of the brush is sufficient to send the egg right to the end of its journey along the rubber strip 38 and metal guide 39.

The final washing tank into which the scrubbed eggs are delivered is not shown, but it will be understood that it is located close to the end of the tank 7, the downwardly turned ends 40 of the egg guide 39 being located over the final washing tank. With advantage the final washing tank is fitted with a removable open-work wire basket to receive the eggs and in order to avoid any possibility of eggs being broken as they fall off the guide 39 there may be associated with the delivery end of the said egg guide an egg catching guard of fine wire gauze or other material.

It will be seen from Fig. 3 that the metal strips 39 constituting the egg guide extend longitudinally of the tank 7 under the rubber strip 38, and that below the said brush the metal strips are curved to allow ample room for the flexible strip 38 to deflect downwardly when the brush carries an egg along the same. Furthermore, in order to accommodate eggs of all sizes, this curved end of the egg guide is capable of moving downwardly against the action of springs 42, see Fig. 5, which normally hold it, and the flexible strip 38, in the position shown in Fig. 3. The flexible rubber strip 38 is removably attached to the metal egg guide 39 and for this purpose the end portions of the rubber strip are each provided with an attachment hook formed by a flap 43 of rubber at the underside of the rubber strip that engages or hooks on a metal cross strip 44 that connects the two lengths of metal strip 39 constituting the egg guide. The springs 42 that hold the egg guide and rubber strip in the position shown in Fig. 3 are mounted on pins 45 upwardly projecting from the brackets 6 fixed within the tank, the said pins passing through holes formed therefor in the end portions of another metal cross strip 46 connecting the strips of metal forming the egg guide, and nuts 47 on the pins 45 limit the upward movement of the egg guide.

The invention is not restricted to the details of construction embodied in the egg-washing machine illustrated by way of example, as any variations thereof found desirable or necessary may be made without departure from the invention. Obviously the machine may be driven by any suitable power instead of by hand, and in such case a number of rotary brushes may be provided on the one spindle, and a controllable egg holder provided for each said brush.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An egg washing machine comprising a rotary brush and means for holding an egg and for pressing the same towards said brush in order to present every part of its surface to the action of said brush.

2. An egg washing machine according to the preceding claim comprising means for releasing the egg from the egg-holding means at the end of a scrubbing operation.

3. An egg washing machine according to Claim 1 comprising means for discharging the eggs from the machine after being scrubbed whether or not the said discharging means be associated with a final washing or rinsing tank into which the scrubbed eggs are delivered.

4. An egg washing machine according to Claim 1 comprising a tank adapted to contain washing liquid into which the rotary brush dips during the rotation thereof.

5. An egg washing machine according to Claim 1 wherein the egg-holding means comprise pairs of conical egg-supporting

rollers made of rubber or other suitable material, carried by a hinged or pivoted structure, at least one pair of said rollers being positively driven during an egg washing operation.

6. An egg washing machine according to Claim 5 wherein the egg-supporting conical rollers are mounted on spindles carried by a structure that is pivoted at its lower end to a member mounted to rotate on a vertical axis, the said structure comprising two stirrup members located one within the other, the inner stirrup member being arranged to rock relatively to the outer stirrup member substantially as described for the purpose specified.

7. An egg washing machine according to Claim 3 wherein the egg discharging means comprise a flexible strip of rubber or other appropriate material along which the egg, after being released from the egg-holding means, is caused to pass by the continued rotation of the rotary brush.

8. An egg washing machine according to Claim 8 wherein the flexible strip of the egg discharging means is carried by an egg guide that extends below the brush and is so mounted as to be capable of downward movement against spring action in order to allow eggs of all sizes to pass through the machine.

9. An egg washing machine constructed and adapted to operate substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

Dated this 27th day of June, 1928.

JOHN P. O'DONNELL & Co.,
Agents for Applicant,
47, Victoria Street, Westminster,
London, S.W. 1.

297,230 COMPLETE SPECIFICATION

SHEET 1

[This Drawing is a reproduction of the Original on a reduced scale.]

FIG. 1.

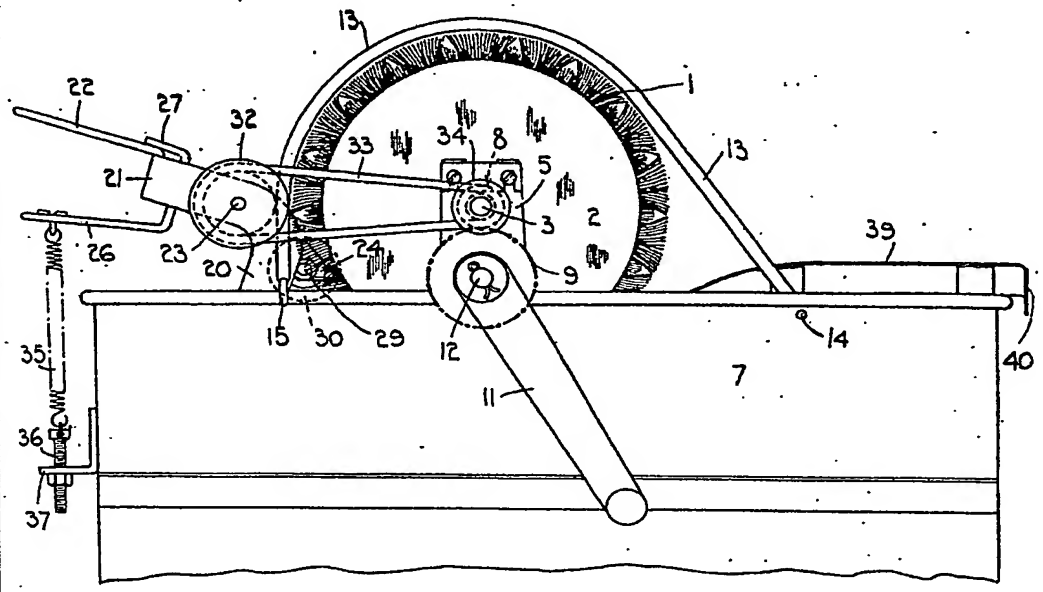


FIG. 2.

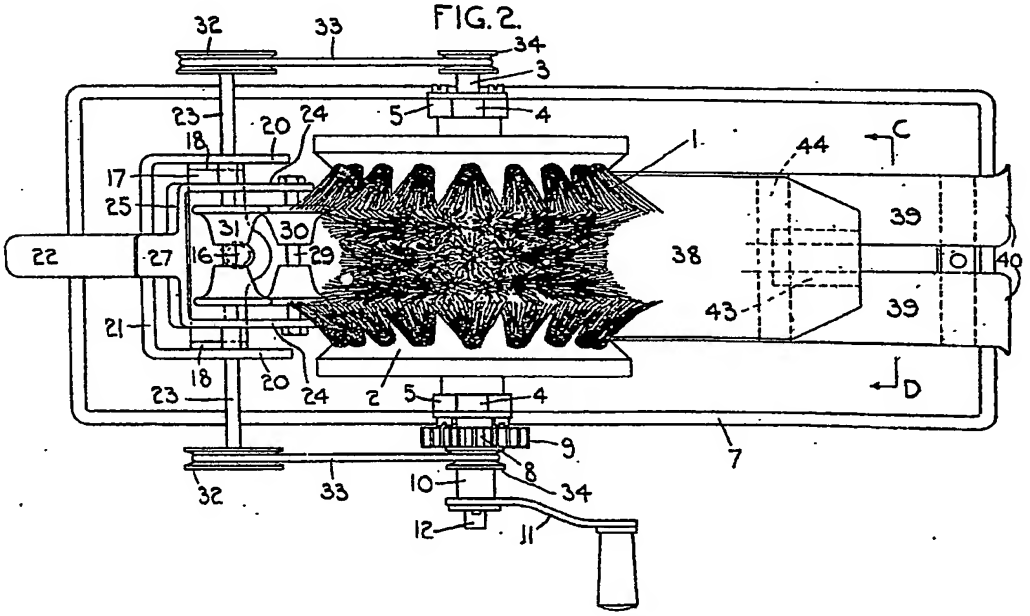


FIG.3.

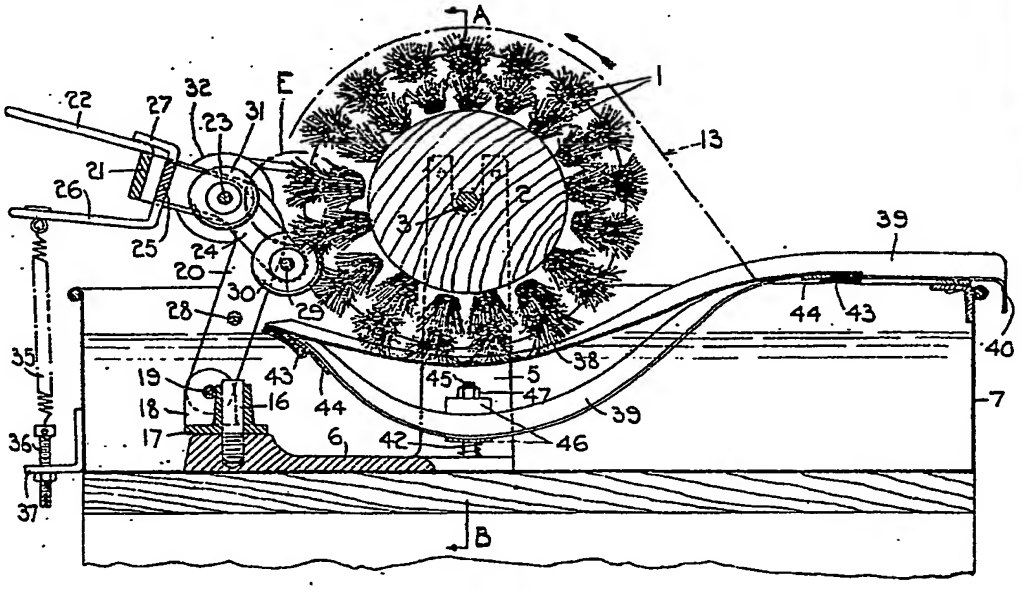


FIG.4.

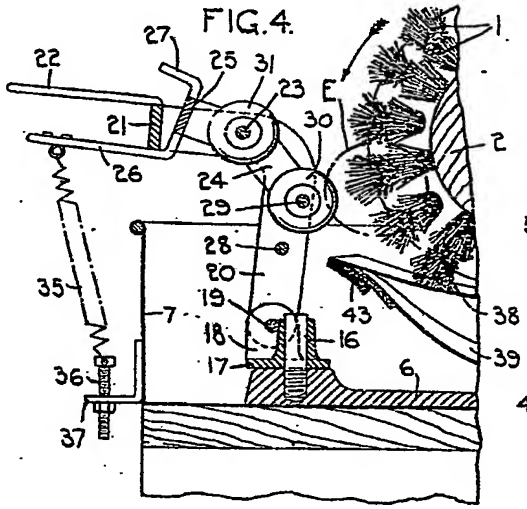


FIG.5.

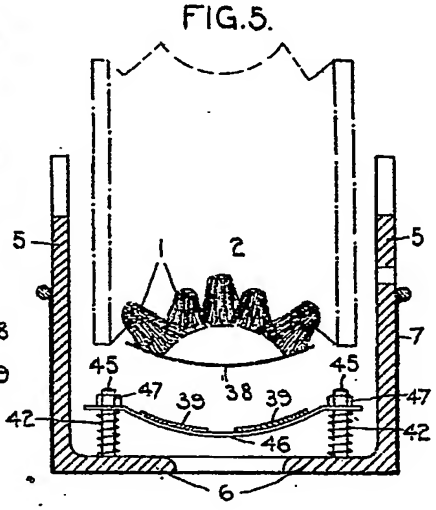
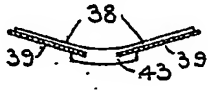


FIG.6.



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297,280 COMPLETE SPECIFICATION

2 SHEETS

SHEET 1

SHEET 2

[This Drawing is a reproduction of the Original on a reduced scale]

FIG.1.

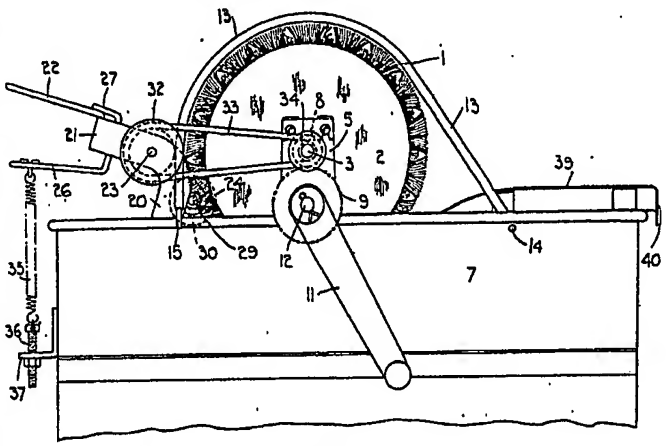

FIG.2.

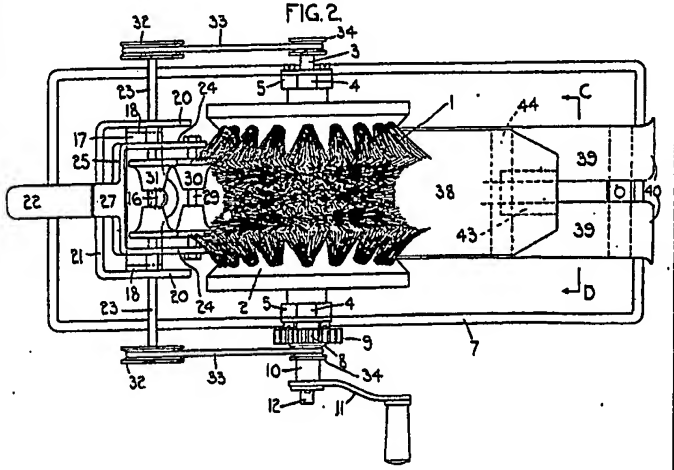

FIG.3.

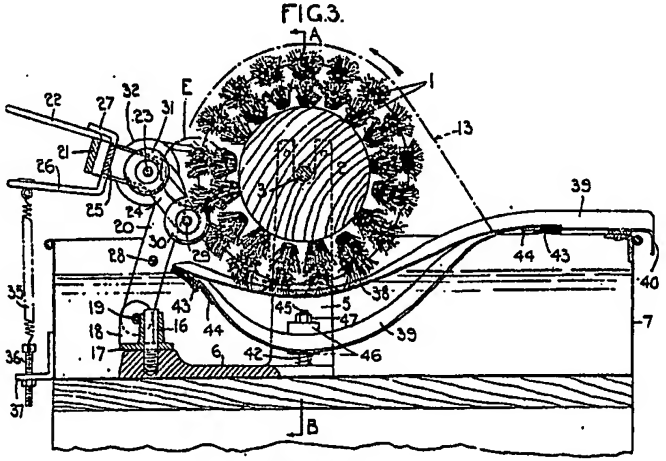

FIG.4.

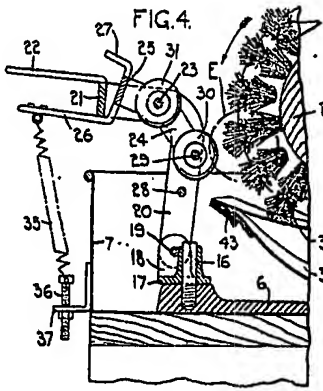

FIG.5.

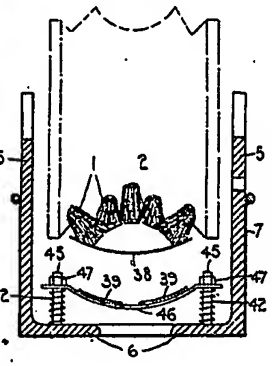

FIG.6.

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